

A Study of the Genus *Phebellia* ROBINEAU-DESVOIDY from Japan (Diptera: Tachinidae)

I. Descriptions of new Species

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Introduction

The genus *Phebellia* ROBINEAU-DESVOIDY is mainly distributed in the Holarctic Region: Eighteen species of the genus have been recorded from the Old World (MESNIL, 1955, 1956, 1963, 1970; HERTING, 1961); in North America SABROSKY and ARNAUD (1965) mentioned that 3 of 16 Nearctic species of *Aplomya* s. lat. would be referred to *Phebellia*. Up to the present day this genus has been poorly known from Japan; MESNIL (1963) described a new Japanese species, *nigricauda*, which is the first record of the genus from Japan; in their tentative catalogue of the Japanese Tachinidae MESNIL and PSCHORN-WALCHER (1967) listed 2 species, *agnatella* and *nigricauda*, from Japan, the former of which was originally described from China.

During the course of my study on the Japanese Tachinidae, I have found 14 species of this genus including 2 undetermined species; among them 4 species are considered to be new and descriptions of them are given in the present paper. In the next paper redescrptions of *nigricauda* and *agnatella*, new records of 6 other species from Japan, discussion on the species-grouping based on the male and female genitalia and a key to the known Japanese species will be given.

Phebellia belongs to the subfamily Goniinae sensu CROSKEY (1976) and may be recognized by the strong pre-alar seta, densely haired eye, two reclinate orbital setae, triangularly set humeral setae and strong lateral scutellar seta. This genus was formerly treated to be closely allied to the genus *Myxexoristops* TOWNSEND, but at present superficial resemblance between these 2 genera is considered to be due to parallelism because of the difference of their reproductive habits: *Phebellia* is known to be ovularviparous and *Myxexoristops* is microtype-oviparous. *Phebellia* is known to parasitize on cimibicid sawfly larvae (Hymenoptera, Cimibicidae) in Europe and North America (THOMPSON, 1951; HERTING, 1960; ARNAUD, 1978), though I have not obtained any host record of Japanese species.

Holotypes of new species described below are kept in the collection of

Biological Laboratory, College of General Education, Kyushu University, Fukuoka (BLKU). Paratypes will be kept in the collections of BLKU and the following institutions: Entomological Institute, Hokkaido University, Sapporo (EIHU); Entomological Laboratory, Kyushu University, Fukuoka (ELKU); Kitakyushu Museum of Natural History, Kitakyushu (KMNH); National Science Museum, Natural History, Tokyo (NSM); Canadian National Collection, Ottawa (CNC); Staatliches Museum für Naturkunde, Stuttgart (SMN).

Genus *Phebellia* ROBINEAU-DESVOIDY

Phebellia ROBINEAU-DESVOIDY, 1846, Ann. Soc. ent. Fr. (2) 4: 37. Type-species: *P. aestivalis* ROBINEAU-DESVOIDY, 1846 (= *Tachina villica* ZETTERSTEDT, 1834) by monotypy.

Melibaea ROBINEAU-DESVOIDY, 1847, Ann. Soc. ent. Fr. (2) 5: 613. Preoccupied name. Type-species: *M. aurulenta* ROBINEAU-DESVOIDY, 1847 (= *Tachina glauca* MEIGEN, 1824) by subsequent designation by ROBINEAU-DESVOIDY, 1863.

Aetylia ROBINEAU-DESVOIDY, 1863, Hist. nat. Dipt. env. Paris 1: 270. Type-species: *A. laeta* ROBINEAU-DESVOIDY, 1863 (= *Exorista glirina* RONDANI, 1859) by monotypy.

Asironia MESNIL, 1955, Die Fliegen 64g: 454. As subgenus of *Phebellia*. Type-species: *Exorista triseti* PANDELLÉ, 1896, by monotypy.

Amelibaea MESNIL, 1955, Die Fliegen 64g: 454. As subgenus of *Phebellia*. Type-species: *Exorista tultschensis* BRAUER et BERGENSTAMM, 1891, by monotypy. *Exorista* auct., nec MEIGEN, 1803.

♂♀. Head: — Eye densely haired; ocellar seta strong; ♂ with 2 reclinate orbital setae and without proclinate orbital seta; ♀ with 2–3 reclinate and 2–3 proclinate orbital setae; 2 postocellar setae; parafacial usually bare, at most with several fine hairs on its upper 1/2; gena subequal in width to parafacial at level of base of antenna or slightly longer; facial ridge almost bare; epistoma at most weakly produced forwards, usually not extending beyond vibrissal angle; 3rd antennal segment more than twice as long as 2nd, arista bare, first 2 segments very short; palpus subequal in length to 3rd antennal segment or slightly longer. Thorax: — Propleuron and mediotergite bare; prosternum haired on its side; barettæ with a few hairs on its anterior portion; 3–4 humeral setae, of which 3 basal setae stand in a triangle; 3+3 *ac*; 3+3–4 *dc*; 0–1+3 *ia*; pre-alar seta stronger than 1st postsutural *ia*; pteropleural seta strong; 1–2+1 *stpl*; scutellum with 4 pairs of marginal and a pair of preapical setae; lateral scutellar seta single, subequal in length to basal seta; subapical scutellar seta strong; apical scutellar

setae rather strong, crossing horizontally or suberectly. Wing: — Hyaline, at most faintly tinged with brown on anterior portion and along veins; epaulette and basicosta brown-black; lower calypter white, at most pale yellowish white; veins brown; second costal sector bare ventrally (setulose in the European species, *triseta*); vein R_{4+5} with several fine hairs on its base; vein M_1 from discal crossvein to its bend shorter than that from the bend to apex of M_1 ; calypter rounded on its inner margin. Legs: — Black, tibiae sometimes yellowish, pulvilli yellowish white; fore tibia with 2 p setae (3–4 in *nigricauda*); mid-tibia with 2–3 ad (usually 2 in ♂), 2 pd and 1 v setae; hind tibia with 2 preapical d setae and 1 apical pv seta; hind coxa usually bare posterodorsally (haired in *nigricauda*). Abdomen: — Mid-dorsal excavation of syntergum 1+2 extending to its posterior margin; median marginal setae distinct on 2nd to 4th terga. ♂ genitalia: — In dorsal view cerci usually separated from each other from middle to apex, and convergent apically; surstylus with short and dense hairs on its distal portion; epiphallus present; distiphallus with distinct spinules on its ventral portion. ♀ genitalia: — Both 6th and 7th spiracles situated on lower portion of 6th tergum; 7th tergum sometimes longitudinally divided into 2 hemitergites; 8th tergum small but distinctly sclerotized; 8th sternum present or absent; supra-anal plate small and weakly sclerotized, without hair; cercus long and narrow, with several hairs on its apical portion.

***Phebellia laxifrons* SHIMA, sp. nov.**

(Fig. 1)

♂. Parafrontal densely grayish white pollinose; parafacial, face and gena densely whitish pollinose; occiput grayish white pollinose; palpus reddish yellow, darkened on its basal 1/2. Vertex 0.32–0.33 of head width; interfrontal area parallel-sided or weakly narrowed posteriorly, subequal in width to parafrontal at middle or slightly narrower; parafacial narrowed below, about $0.6\times$ as wide as 3rd antennal segment at middle-height; gena slightly narrower than parafrontal at level of base of antenna; occiput well bulged. Inner vertical seta about 0.7 of eye-height; outer vertical seta strong, about 1/2 of inner seta; 1–2 postvertical setae on each side; 2–3 reclinate orbital setae, hindmost seta fine, anterior setae slightly shorter than ocellar seta; 6–8 frontal setae, lowest seta level with base of 3rd antennal segment; parafrontal with dense and fine hairs, which do not descend below lowest frontal seta; parafacial bare; vibrissa nearly level with lower margin of face; occiput with 1–2 rows of short black setulae. Second antennal segment about $0.3\times$ as long as 3rd; 3rd segment about $2.5\times$ as long as wide, falling short of lower margin of face by about 1/7 of its length. Third arisal segment thickened on its basal 1/3. Palpus widened and flattened apically, slightly shorter than 3rd antennal segment, with dense and short hairs.

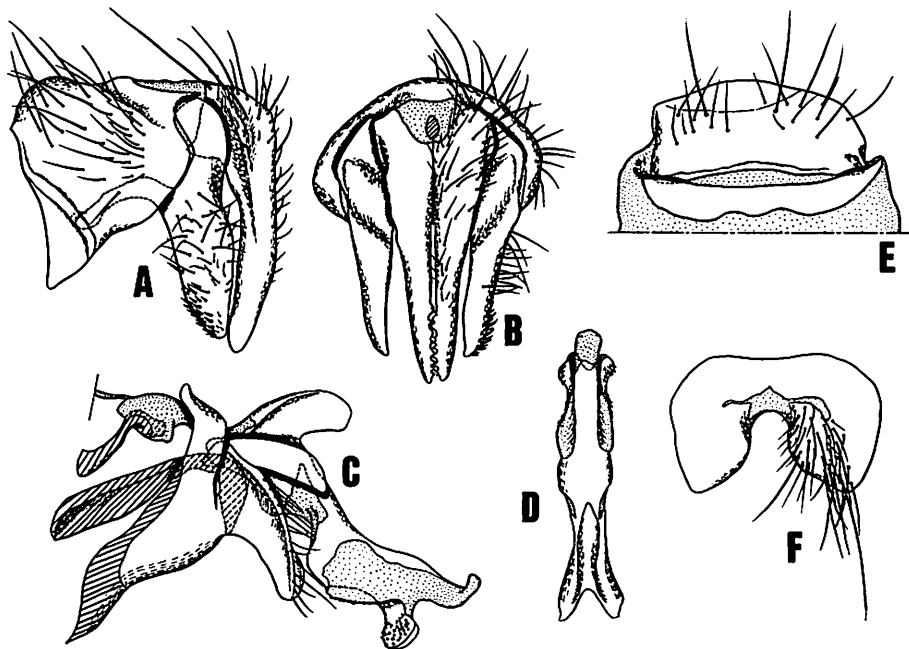


Fig. 1. Male genitalia of *Phebellia laxifrons* sp. nov.

A. Epandrium, cerci and surstylus in lateral view; B. same in dorsal view; C. hypandrium, pregonite, postgonite and aedeagus in lateral view; D. aedeagus in dorsal view; E. 6th tergum and synsternum 7+8 in dorsal view; F. 5th sternum in ventral view.

Thoracic dorsum rather thinly grayish white pollinose; 5 longitudinal vittae present on dorsum, middle one absent on prescutum; scutellum reddish brown at apex, thinly grayish pollinose; pleura thinly grayish white pollinose. Hairs on dorsum very fine and dense, longer on pleura, stronger and longer on scutellum; 3-4 humeral setae, foremost one and inner basal one sometimes very fine; 3+4 *dc*; presutural *ia* fine; 1+1 or 2+1 *stpl*; distance between bases of two subapical scutellar setae 1.6-1.7 \times as long as that between basal and subapical setae of same side.

Wing: Second costal sector subequal in length to 4th and about 1/2 as long as 3rd; vein M_1 from discal crossvein to its bend subequal in length to distance between the bend and wing margin.

Legs: Tibiae reddish yellow. Mid-tibia with 3-4 *ad*, 2 *pd* and 1 *v* setae; hind tibia with an irregular row of *ad* setae, middle one stronger, 2-3 *pd* and *v* setae; claws and pulvilli very short, fore claw and pulvillus about 1/2 as long as 5th tarsomere.

Abdomen shining black in ground color; dorsum of each anterior 2/3 of 3rd and 4th terga and about 3/4 of 5th tergum rather densely grayish white pollinose,

the pollinosity shifting in appearance with direction of light; venter evenly covered with grayish white pollinosity; mid-dorsal longitudinal vitta broad and distinct on 3rd to 5th terga. Hairs on dorsum dense, suberect, short and rather strong, becoming stronger and sparser on posterior terga, finer on venter; 2nd tergum with 2 median marginal and 1–2 lateral marginal setae; 3rd tergum with 2 median marginal setae and 2 lateral marginal setae; 4th tergum with a row of marginal setae; median and lateral discal setae absent on 3rd and 4th terga, only a few stronger hairs present on mid-dorsal portion; 5th tergum with rows of discal and marginal setae, discal setae rather short and mixed with strong erect hairs.

♂ genitalia: Fifth sternum about $1.6\times$ as wide as long, posterior lobe with dense and rather strong hairs; 6th tergum wide and short, well sclerotized, entire, without hair; cerci in dorsal view evenly narrowed to apex, weakly separated from each other at basal $2/5$ and parallel to apex, apical portion of inner side of each cercus strongly serrate, in lateral view weakly curved ventrally; surstylus shorter than cerci, in lateral view weakly narrowed to apex, with dense and short hairs on its ventral portion; pregonite long, with rather dense hairs on its posterior portion; postgonite rather short; epiphallus broad; distiphallus not expanded laterally.

♀. Unknown.

Body length: 7.8–9.0 mm., wing length: 6.0–7.4 mm.

Distribution. Japan (Hokkaido, Honshu).

Holotype ♂, Mt. Norikura (1800–2600 m), Nagano, Honshu, 26. vii. 1979, K. OHARA (BLKU).

Paratypes: [HOKKAIDO] 1♂, Aizankei, Mts. Daisetsu, 7. viii. 1967, A. NAKANISHI (BLKU). [HONSHU] 1♂, Oirase, Aomori Pref., 1. viii. 1979, K. OHARA (BLKU); 1♂, Shimashimadani, Nagano, 22. v. 1975, A. NAKANISHI (KMNH IR 100,001); 1♂, same locality, 2. vii. 1966, H. SHIMA (BLKU); 2♂♂, same data as holotype (CNC, ELKU).

Remarks. This species may be easily distinguished from the other species of this genus by the wide vertex, strong outer vertical seta in ♂ and very short claws and pulvilli in ♂. This species seems to be allied to *P. glirina* (RONDANI), judging from the structure of the ♂ genitalia.

***Phebellia flavescens* SHIMA, sp. nov.**

(Fig. 2)

♂. Parafrontal and upper portion of parafacial yellow to yellowish white pollinose; lower portion of parafacial, face and gena whitish pollinose; occiput grayish white pollinose; anterior portions of 1st and 2nd antennal segments and base of 3rd narrowly reddish; palpus orange yellow, narrowly darkened at base.

Vertex 0.23–0.25 of head width; interfrontal area widened anteriorly, subequal in width to parafrontal at middle; parafacial weakly narrowed below, $0.6\text{--}0.7\times$ as wide as 3rd antennal segment at middle-height; gena 0.22–0.24 of eye-height; occiput weakly bulged. Inner vertical seta strong, about 0.6 of eye-height; outer vertical seta indistinct; 2 reclinate orbital setae, anterior seta stronger than posterior seta and subequal in length to ocellar seta, sometimes 1 fine reclinate seta present in front of anterior orbital seta; 8–9 frontal setae, lowest seta nearly level with base of arista; parafrontal with rather dense and long hairs; parafacial sometimes with a few hairs on its upper 1/2; vibrissa nearly level with lower margin of face; 3–5 fine and short postvertical setae; occiput without black setulae on its upper 4/5. Third antennal segment $3.5\text{--}3.7\times$ as long as 2nd, falling only slightly short of lower margin of face. Third arisal segment thickened on its basal 1/3. Palpus slightly shorter than 3rd antennal segment, slightly flattened and widened apically.

Prescutum and scutum densely yellowish white pollinose; 4 narrow longitudinal vittae distinct, when viewed from behind an additional obscure median vitta visible on posterior portion of prescutum and on scutum; pleura thinly grayish white pollinose; scutellum yellow in ground color, narrowly darkened on its an-

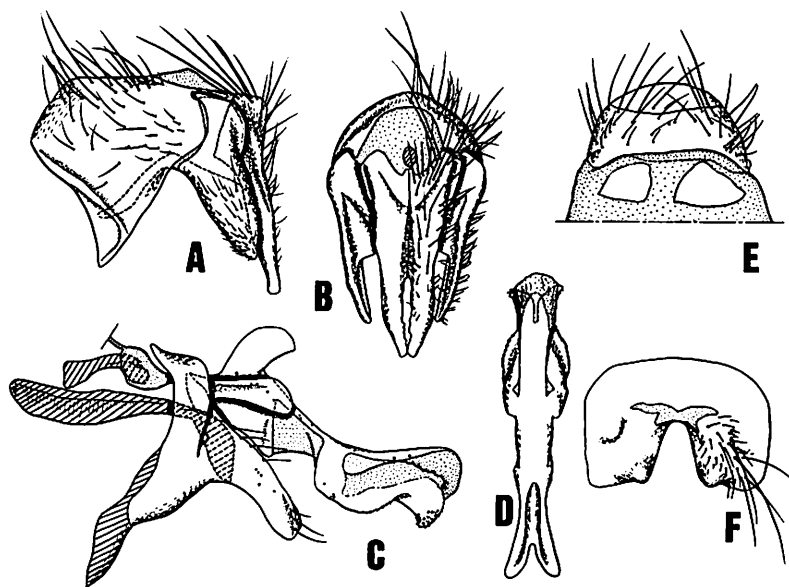


Fig. 2. Male genitalia of *Phebellia flavescens* sp. nov.

A. Epandrium, cerci and surstylus in lateral view; B. same in dorsal view; C. hypandrium, pregonite, postgonite and aedeagus in lateral view; D. aedeagus in dorsal view; E. 6th tergum and synsternum 7+8 in dorsal view; F. 5th sternum in ventral view.

terior portion, thinly yellowish white pollinose. Hairs dense, fine and erect on dorsum, longer on pleura and stronger on scutellum; 3+3 *dc*; presutural *ia* sometimes fine; 1+1 *stpl*; 3-4 humeral setae, foremost one very weak; distance between bases of two subapical scutellar setae slightly longer than that between basal and subapical setae of same side.

Wing: Second costal sector subequal in length to 4th and about $0.6\times$ as long as 3rd; vein M_1 from discal crossvein to its bend subequal in length to distance between the bend and wing margin.

Legs: Tibiae yellow, darkened on ventroproximal portions. Mid-tibia with 2 *ad* setae, upper one small, 2 *pd* setae and 1 *v* seta; hind tibia with a regular row of *ad* setae, middle one strong, 4-5 *pd* and 3-5 *v* setae; claws and pulvilli long, fore claw and pulvillus about $1.5\times$ as long as 5th tarsomere.

Abdomen black in ground color; posterior portion of syntergum 1+2 and almost entire 3rd and 4th terga rather densely yellowish pollinose; 5th tergum broadly brown-black from its median portion to posterior margin; mid-dorsal longitudinal vitta distinct and broad on 3rd tergum; venter evenly grayish white pollinose. Hairs on dorsum dense, strong and erect, stronger and longer on each mid-dorsal portion of 3rd and 4th terga and on 5th tergum; venter with suberect and rather fine long hairs; 2nd tergum with 2-4 strong median marginal setae and 1-2 lateral marginal setae; 3rd tergum with 4 strong median marginal setae and 2 lateral marginal setae; 4th tergum with a row of marginal setae; 5th tergum with an irregular row of discal and a row of marginal setae; discal seta absent on intermediate terga, some strong and bristle-like hairs present on mid-dorsal portion of 4th tergum.

♂ genitalia: Fifth sternum short and wide, posterior lobe with several strong hairs on its inner portion, inner margin of posterior lobe with small protuberance at apex; 6th tergum rather weakly sclerotized, broadly divided into 2 hemitergites at middle, without hair; cerci longer than surstylus, in lateral view flattened, in dorsal view separated from each other at apical $3/8$ and convergent apically; surstylus evenly narrowed to apex in lateral view, with dense fine hairs; pregonite long, with a row of fine hairs on its posterior surface; postgonite rather short; epiphallus broad; distiphallus not expanded laterally.

♀. Unknown.

Body length: 7.2-8.6 mm., wing length: 6.4-7.2 mm.

Distribution. Japan (Hokkaido, Honshu).

Holotype ♂, Mt. Moiwa, Sapporo, Hokkaido, 11. vii. 1967, H. SHIMA (BLKU).

Paratypes: [HOKKAIDO] 1♂, same data as holotype (BLKU). [HONSHU] 1♂, Karasawa, Mt. Hodaka, Nagano, 21. vii. 1966, A. NAKANISHI (KMNH IR 100,002); 1♂, Ryokami, Saitama, 1. viii. 1975, K. HARA (BLKU).

Remarks. This species is peculiar in having only 2 *stpl* and 2+3 *dc* setae.

At a glance this species resembles some members of *Carcelia*, but the thoracic chaetotaxy, head structure and hairing of legs are different from those of *Carcelia*. Although this species is fairly different from the other species of *Phebellia* in general facies, it is well assignable to this genus because of its humeral chaetotaxy and strong lateral scutellar seta.

***Phebellia nudicosta* SHIMA, sp. nov.**

(Figs. 3, 4)

♂. Parafrontal and upper portion of parafacial yellowish white pollinose; lower portion of parafacial, face and gena whitish pollinose; occiput grayish pollinose; the pollinosity on upper portion of parafrontal thin; apex of 1st antennal segment and base of 3rd reddish; palpus brown, darkened at base and reddish brown at apex. Vertex 0.24–0.25 of head width; interfrontal area widened anteriorly, subequal in width to parafrontal at middle; parafacial narrowed below, subequal in width to 3rd antennal segment at middle-height; gena 0.22–0.24 of eye-height; occiput well bulged. Inner vertical seta about 0.6 of eye-height; outer vertical seta indistinct; 1 fine postvertical seta on each side; 2 reclinate orbital setae, anterior seta stronger than posterior seta; 8–11 frontal setae, lowest seta level with base of arista; parafrontal with dense, long and fine hairs which do not descend below lowest frontal seta; parafacial bare; vibrissa nearly level with lower margin of face; upper occiput with 2–3 irregular rows of black setulae. Antenna falling short of lower margin of face by about 1/7 length of 3rd segment; 3rd segment $3.0\text{--}3.5\times$ as long as 2nd. Arista long, 3rd segment thickened on its basal 1/4. Palpus slightly widened apically, subequal in length to 3rd antennal segment, with dense hairs.

Thoracic dorsum thinly grayish white pollinose, the pollinosity dense and sometimes yellowish on humeral callus, on anterior portion and side of prescutum and on narrow side of scutum; scutellum reddish brown on apical 1/3–2/3 in ground color, thinly grayish, sometimes yellowish, white pollinose; pleura thinly grayish white pollinose. Hairs on dorsum dense, erect and fine, stronger on scutellum and longer on pleura; 5 humeral setae, anterior 2 fine; 3+3 *dc*; pre-sutural *ia* seta always distinct; 2+1 *stpl*; distance between bases of 2 subapical scutellar setae $1.3\times$ as long as that between basal and subapical setae of same side.

Wing: Second costal sector subequal in length to 4th and about 1/2 as long as 3rd; vein M_1 from discal crossvein to its bend about $1.3\times$ as long as distance between the bend and wing margin.

Legs: Tibiae black. Mid-tibia with 2 *ad*, 2 *pd* and 1 *v* setae; hind tibia with a row of *ad* setae, middle one strong, 4–5 *pd* and 3–4 *v* setae; claws and pulvilli very long, fore claw and pulvillus $1.5\times$ as long as 5th tarsomere.

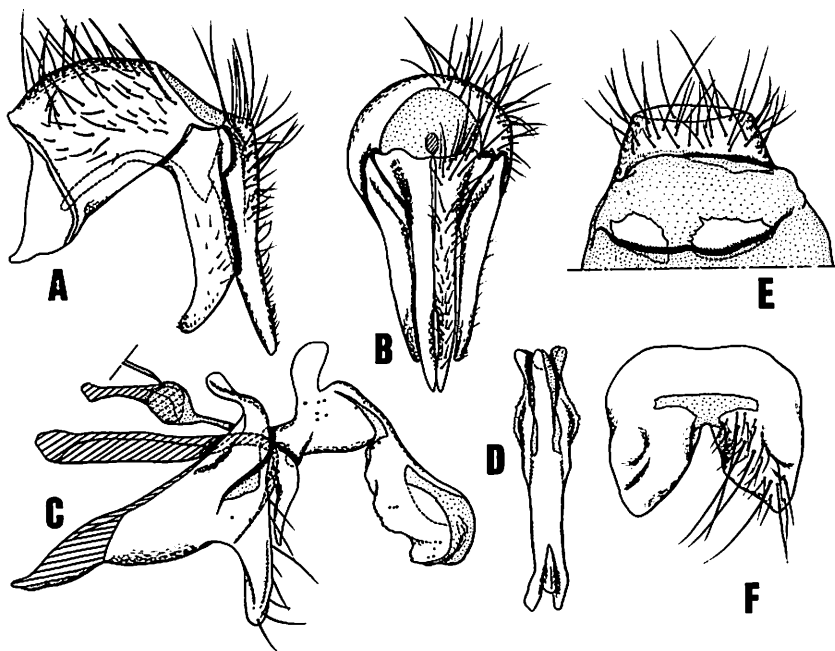


Fig. 3. Male genitalia of *Phebellia nudicosta* sp. nov.

A. Epandrium, cerci and surstylus in lateral view; B. same in dorsal view; C. hypandrium, pregonite, postgonite and aedeagus in lateral view; D. aedeagus in dorsal view; E. 6th tergum and synsternum 7+8 in dorsal view; F. 5th sternum in ventral view.

Abdomen black in ground color, shining on dorsum, reddish on side of 3rd tergum and anterolateral portion of 4th tergum; 3rd and 4th terga each thinly grayish white pollinose on anterior 2/3; 5th tergum very thinly grayish pollinose on anterior 1/2, the pollinosity only visible when viewed from behind; venter thinly grayish pollinose; mid-dorsal longitudinal vitta broad and brownish when viewed from behind; each posterior 1/3 of 3rd and 4th terga appearing brownish with direction of light. Hairs on dorsum dense, fine and suberect, stronger on each mid-dorsal portion of 3rd and 4th terga and on entire 5th tergum, fine and suberect on venter; 2nd tergum with 2 median marginal setae and 1 lateral marginal seta; 3rd tergum with 3-4 median marginal setae, 1-2 lateral marginal setae and 2 median discal setae; 4th tergum with a row of marginal setae and 2-3 (usually 2) median discal setae, the latter sometimes irregularly set; 5th tergum with rows of discal and marginal setae, which are mixed with strong bristle-like hairs.

♂ genitalia: Fifth sternum shorter than wide, posterior lobe with rather dense strong hairs on inner portion, inner margin of posterior lobe weakly bulged at apex; 6th tergum rather broad and short, divided into 2 hemitergites at middle,

without hair; cerci in lateral view slightly curved dorsally at apex, in dorsal view slender, narrowly separated from each other at apical 1/3 and convergent apically; surstylus shorter than cerci, in lateral view curved ventrally at apical 1/4, with several short and strong hairs on its apical portion; pregonite rather long, with a row of several long hairs on its posterior margin; postgonite short; epiphallus widened towards apex; distiphallus only slightly expanded laterally in dorsal view.

♀. Differing from ♂ as follows: Parafrontal and upper portion of parafacial densely yellowish pollinose; palpus reddish yellow on its apical 1/2; thorax more yellowish pollinose than in ♂, scutellum yellowish on its posterior 1/2, thinly yellowish white pollinose; abdomen thinly yellowish white pollinose on each anterior 2/3 of 3rd and 4th terga; 5th tergum grayish white, somewhat yellowish, pollinose on its side. Vertex 0.28–0.31 of head width; interfrontal area slightly narrower than parafrontal at middle. Hairs on parafrontal sparser than in ♂; outer vertical seta about 2/3 of inner seta; 2 strong proclinate orbital setae, which are stronger than anterior reclinate orbital seta; 5–8 frontal setae. Third antennal segment about 3× as long as 2nd. Mid-tibia with 2–3 strong *ad* setae; 5th tarsomere of fore leg longer than claw and pulvillus. Fifth abdominal tergum nearly conical, at most very narrowly truncated at apex; hairs on dorsum

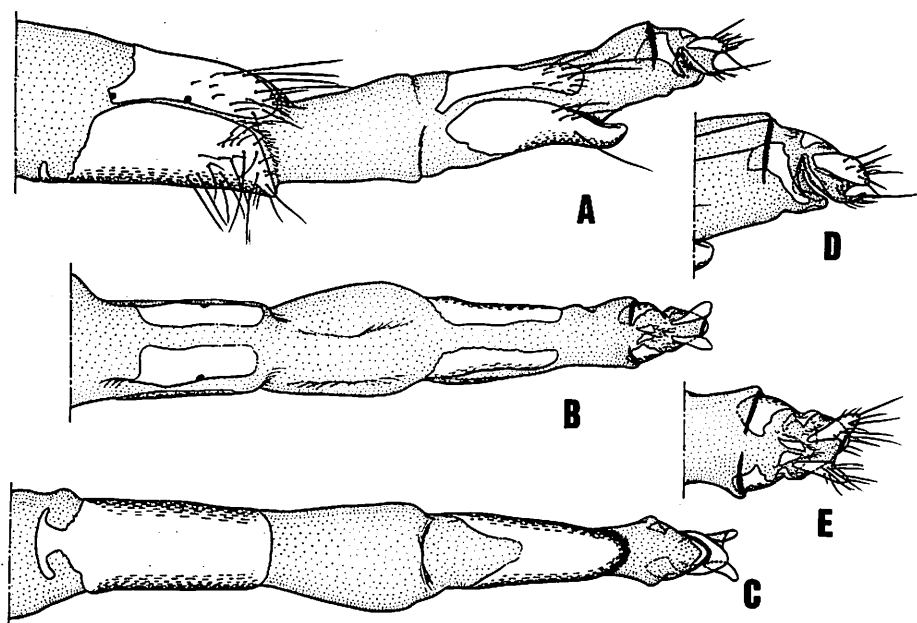


Fig. 4. Female genitalia of *Phebellia nudicosta* sp. nov.

A. Lateral view; B. dorsal view; C. ventral view; D. apex in lateral view; E. same in dorsal view (hairs omitted in B & C).

of 3rd and 4th terga recumbent to suberect. ♀ genitalia: Sixth sternum with T-shaped extension on ventroproximal portion, bearing several long hairs on its posterior 1/2; 6th tergum divided longitudinally into 2 hemitergites; intersegmental membrane between 6th and 7th segments longer than 6th tergum; 7th tergum rather weakly sclerotized, broadly divided at middle; 7th sternum with free distal projection, which is rounded and slightly curved dorsally at apex; 8th tergum small, without hair; 8th sternum V-shaped, weakly sclerotized, without hair; supra-anal plate weakly sclerotized, divided longitudinally into 2 hemitergites.

Body length: 8.0–14.0 mm., wing length: 6.6–8.1 mm.

Distribution. Japan (Hokkaido, Honshu).

Holotype ♂, Aizankei, Mts. Daisetsu, Hokkaido, 8. viii. 1967, H. SHIMA (BLKU).

Paratypes: [HOKKAIDO] 1♂, Rishiri, 5. viii. 1965, T. KOCHA (EIHU); 7♂♂1♀, same locality as holotype, 6–10. viii. 1967, H. SHIMA (BLKU, CNC, KMNH IR 100,003, SMN); 1♀, Kurodake, Mts. Daisetsu, 1–3. viii. 1964, H. TANGE & A. KANEKO (NSM); 1♂1♀, Lake Shikaribetsu, 9. viii. 1979, K. OHARA (BLKU); 2♂♂, Yukomanbetsu, 5. viii. 1979, K. OHARA (ELKU, KMNH IR 100,004); 1♂, Mt. Muine, Sapporo, 13. viii. 1977, K. OHARA (ELKU). [HONSHU] 1♂, Hachimantai, Akita, 28–31. vii. 1970, S. SHINONAGA (BLKU); 1♀, Hiuchiyama, S. Echigo, Niigata, 27. viii. 1966, K. BABA (BLKU); 2♂♂2♀♀, Mt. Fuji, Shizuoka, 18. viii. 1965, S. SHINONAGA (BLKU, NSM); 1♂, Mt. Kitadake, Nagano, 28. vii. 1979, K. OHARA (BLKU); 1♂, Mt. Kitadake, 28. viii. 1980, T. GOTO (ELKU); 1♂, Mt. Asama, Nagano, 21. viii. 1971, R. KANO (NSM); 1♂, Mt. Asama, 10. viii. 1976, H. KURAHASHI (NSM); 1♂, Mt. Myoko, Nagano, 16–18. vii. 1973, K. NISHIDA (BLKU); 1♂1♀, Kamikochi, Nagano, 6. viii. 1950, T. IIDA (EIHU); 1♀, Kamikochi, 7. viii. 1949, S. KATO (EIHU); 1♂, Norikura Highland (1500–1600 m), Nagano, 25. vii. 1979, K. OHARA (BLKU).

Remarks. This species seems to be related to European *P. trisetata* (PANDELLÉ), but may be distinguished from it by the longer 3rd antennal segment, only 2 median discal setae on both 3rd and 4th abdominal terga and bare ventral surface of the 2nd costal sector of the wing. The male genitalia of this species also resemble those of *trisetata*, but the surstylus of *trisetata* is more strongly curved than in this species.

***Phbellia latipalpis* SHIMA, sp. nov.**

(Figs. 5, 6)

♂. Parafrontal densely grayish white, sometimes yellowish, pollinose; parafrontal, face and gena densely whitish pollinose; occiput grayish white

pollinose; palpus black. Vertex 0.24–0.26 of head width; interfrontal area widened anteriorly, slightly narrower than parafrontal at middle; parafacial slightly narrowed below, subequal in width to 3rd antennal segment at middle-height; occiput slightly bulged. Inner vertical seta about 0.6 of eye-height; outer vertical seta indistinct; 2–3 reclinate orbital setae, rarely an additional fine reclinate seta present in front of foremost reclinate orbital seta; 8–12 frontal setae, lowest seta level with base of arista; parafrontal with dense and very fine hairs, which do not descend below lowest frontal seta; parafacial bare; 1 fine and long postvertical seta on each side; vibrissa inserted above the level of lower margin of face; occiput without black setulae on its upper 2/3. Antenna long and stout; 2nd segment $0.29\text{--}0.31 \times$ as long as 3rd; 3rd segment about $3.5 \times$ as long as wide, falling short of lower margin of face by about $1/6$ of its length. Arista subequal in length to antenna; 3rd segment thickened on its basal $1/4$. Palpus slightly shorter than 3rd antennal segment, distinctly flattened and widened apically, apical portion about twice as wide as basal portion, with dense and short hairs dorsally, with long hairs ventrally.

Thoracic dorsum densely yellowish gray pollinose, 5 longitudinal vittae

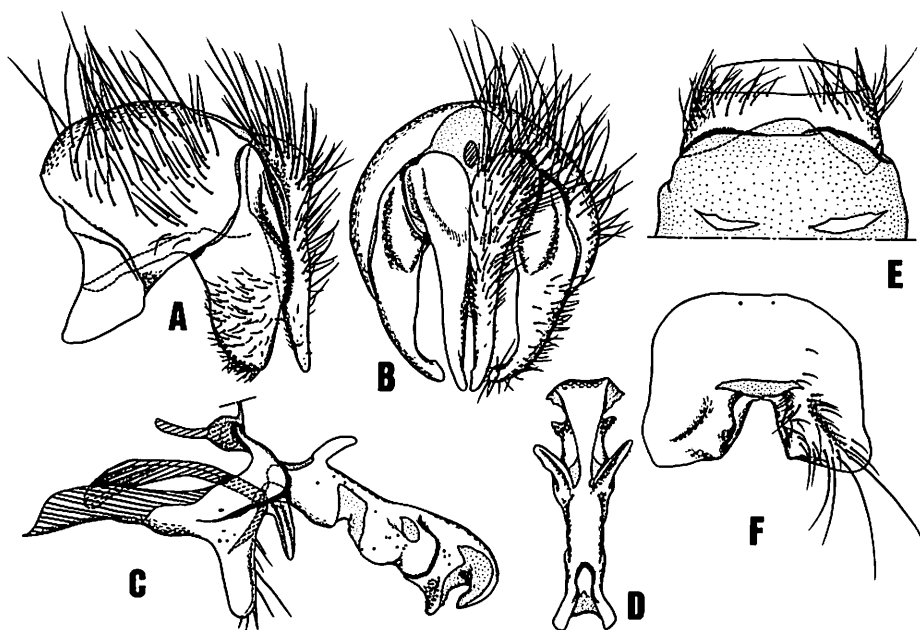


Fig. 5. Male genitalia of *Phebellia latipalpis* sp. nov.

A. Epandrium, cerci and surstylus in lateral view; B. same in dorsal view; C. hypandrium, pregonite, postgonite and aedeagus in lateral view; D. aedeagus in dorsal view; E. 6th tergum and synsternum 7+8 in dorsal view; F. 5th sternum in ventral view.

present on prescutum and scutum, middle one sometimes very narrow and rarely absent on prescutum; scutellum reddish on its posterior 1/2, densely yellowish gray pollinose; pleura thinly grayish white pollinose. Hairs on dorsum dense, erect and very fine, longer and stronger on posterior portion of scutellum; 4 humeral setae, foremost seta sometimes very fine; 3+4 *dc*; 0—1+3 *ia*; 2+1 *stpl* (one specimen examined has 1+1 *stpl*, but this condition seems to be abnormal); preapical scutellar seta very fine and suberect, at most subequal in length to scutellum, sometimes indistinct; distance between bases of two subapical scutellar setae subequal in length to that between basal and subapical ones of same side, or slightly longer.

Wing: Second costal sector subequal in length to 4th and $0.4-0.5 \times$ as long as 3rd; bend of vein M_1 about equidistant between discal crossvein and wing margin.

Legs: Tibiae black. Mid-tibia with 2 *ad*, 2 *pd* and 1 *v* setae; hind tibia with a row of irregular *ad* setae, middle one strong, 2 *pd* and 2–3 *v* setae; claws and pulvilli long, fore claw and pulvillus about $1.5 \times$ as long as 5th tarsomere.

Abdomen shining black in ground color; rather thinly grayish white pollinose on dorsum of 3rd to 5th terga, the pollinosity paler on posterior portions of each tergum and shifting in appearance with direction of light; median longitudinal vitta present on 3rd to 5th terga, very broad and distinct on 3rd tergum; venter thinly grayish white pollinose. Hairs rather dense and suberect on dorsum, fine and recumbent on venter; 2nd tergum with 2 median marginal setae and 1–2 lateral marginal setae; 3rd tergum with 2 median discal setae, 4–5 median marginal setae and 2–3 lateral marginal setae, median discal setae sometimes very fine and hair-like; 4th tergum with 2–3 irregular discal setae and a row of marginal setae; 5th tergum with regularly set rows of discal and marginal setae.

♂ genitalia: Fifth sternum slightly wider than long; 6th tergum reduced to 2 small hemitergites; cerci slightly longer than surstylus, in lateral view evenly narrowed apically, in dorsal view separated from each other on apical 2/5 and weakly convergent apically; surstylus in lateral view broad, with dense short hairs on its posteroventral portion, in dorsal view strongly curved inwards; pregonite long, with several hairs on its posterior surface; postgonite narrow and rather long; epiphallus narrow and inclined posteriorly; distiphallus with laterally expanded lobe at middle.

♀. Differing from ♂ as follows: Vertex $0.31-0.32$ of head width; outer vertical seta strong, about $0.7 \times$ as long as inner one; 2 strong proclinate orbital setae, anterior seta stronger than posterior one and subequal in length to anterior reclinate orbital seta; 3 strong reclinate orbital setae; 6–8 frontal setae; 3rd antennal segment about $3 \times$ as long as 2nd; palpus slightly longer than 3rd antennal segment; pollinosity on thoracic dorsum denser and more yellowish than in ♂; presutural *ia* seta always present; preapical scutellar seta recumbent,

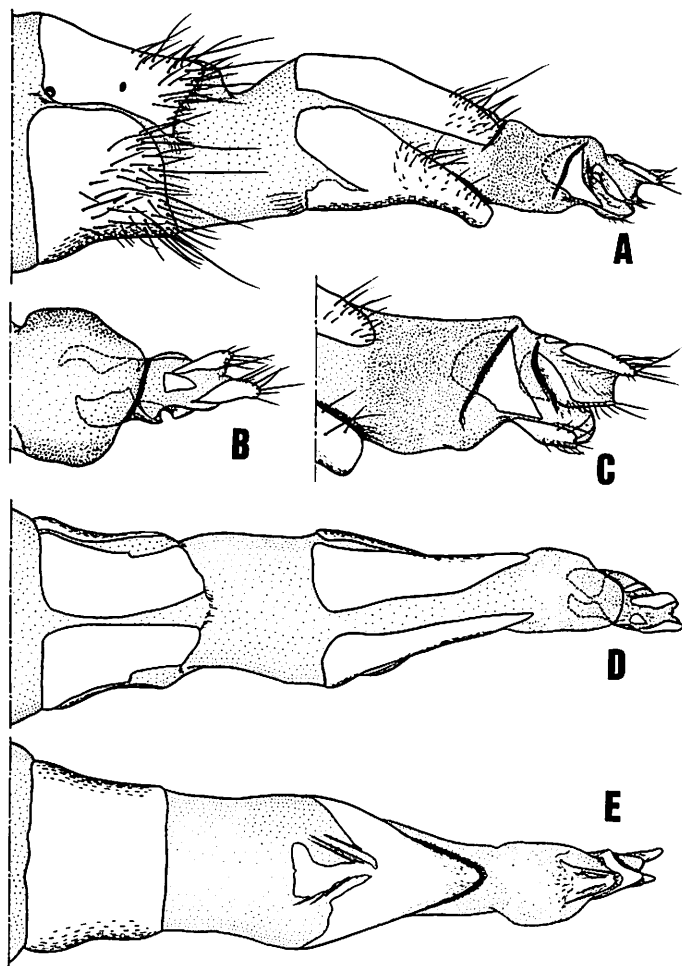


Fig. 6. Female genitalia of *Phebellia latipalpis* sp. nov.

A. Lateral view; B. apex in dorsal view; C. same in lateral view; D. dorsal view; E. ventral view (hairs omitted in D & E).

slightly shorter than scutellum; mid-tibia with 3 *ad* setae; fore claw and pulvillus $1/2$ as long as 5th tarsomere; dorsum of 3rd and 4th abdominal terga with recumbent hairs; 4th tergum with 2–3 irregular discal setae. ♀ genitalia: Sixth tergum divided longitudinally into 2 hemitergites; 6th sternum short; 7th sternum rather short, with fine hairs on its dorsal portion of posterior $1/2$, anterior portion with broad membranous incision on each side, distal end free and weakly curved ventrally; 8th tergum small, without hair; 8th sternum well sclerotized, with several hairs; supra-anal plate small.

Body length: 8.3–10.2 mm., wing length: 6.6–8.7 mm.

Distribution. Japan (Hokkaido, Honshu, Kyushu).

Holotype ♂, Mt. Yubari, Sorachi, Hokkaido, 15. vii. 1967, H. SHIMA (BLKU).

Paratypes: [HOKKAIDO] 2♂♂, Ohati (1900–2200 m), Mts. Daisetsu, 16–23. vii. 1975, M. SUWA et al. (EIHU); 2♂♂, same locality as holotype, 14–15. vii. 1967, H. SHIMA (BLKU, KMNH IR 100,005); 1♂, Kamishibinai, Sorachi, 10. vi. 1967, T. SAIGUSA (BLKU); 1♂1♀, Berabonai, Ashoro, 16. vi. 1967, T. SAIGUSA (BLKU, KMNH IR 100,006); 1♀, Berabonai, 24. vii. 1967, H. SHIMA (BLKU); 1♂, Obihiro, 13. vii. 1953, S. TAKANO (EIHU); 1♂, Maruyama Park, Sapporo, 27. vii. 1965, R. KANO & S. SHINONAGA (NSM); 1♂, Nopporo, 3. vi. 1973, M. SUWA (EIHU). [HONSHU] 1♂, Kashiwa, Chiba, 3. v. 1974, R. KANO (NSM); 1♂, Mt. Myoko, Nagano, 16–18. vii. 1973, K. NISHIDA (BLKU). [KYUSHU] 1♂, Aburayama, Fukuoka, 20. iv. 1967, A. NAKANISHI (BLKU); 1♀, Aburayama, 29. iv. 1966, H. SHIMA (CNC); 1♂, Aburayama, 24. iv. 1968, S. MIYAMOTO (SMN); 1♂, Shiiba, Miyazaki, 25. v. 1974, H. SHIMA (BLKU).

Remarks. This species seems to be closely related to *P. agnatella* MESNIL, but is distinguished from it by the longer 3rd antennal segment, spatulate palpus, very fine and suberect preapical scutellar setae and denser and finer hairs on abdominal dorsum. The male genitalia of this species are apparently different from those of *agnatella* in having broad and inwardly curved surstylus.

(to be continued)